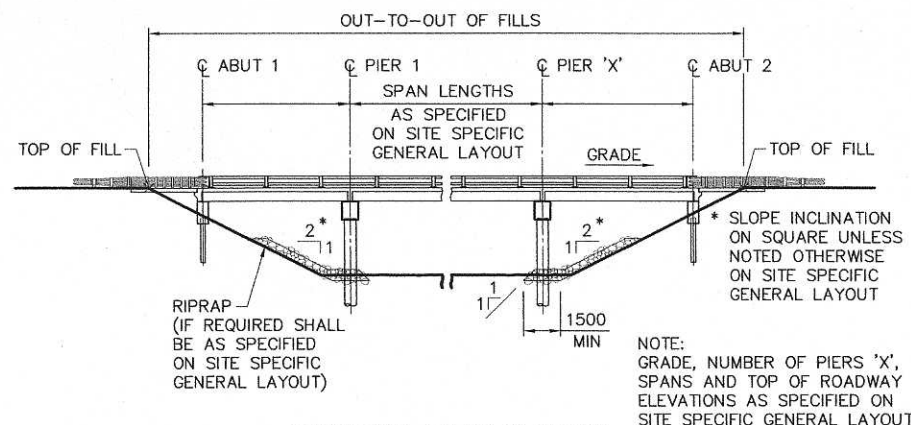
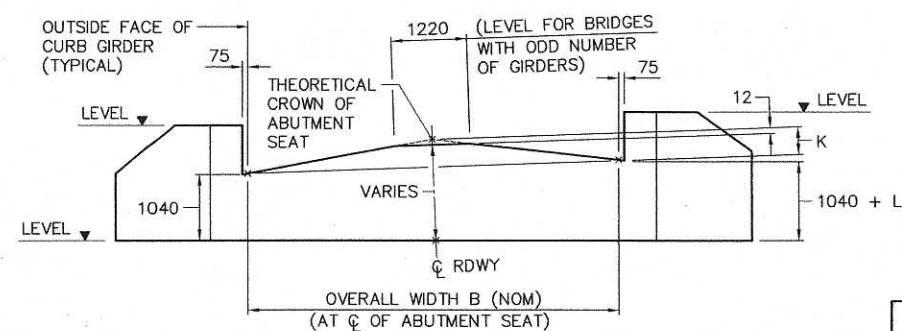


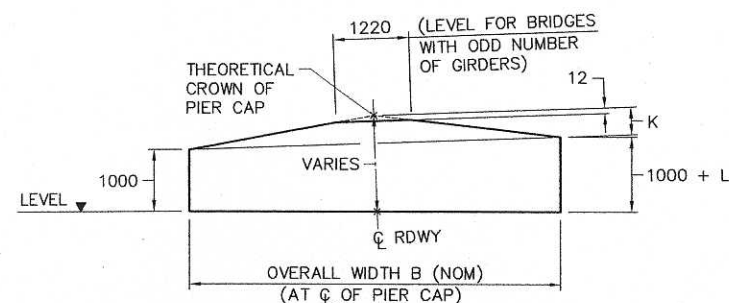
**BRIDGE PLAN**  
NTS



**BRIDGE ELEVATION**  
NTS



**ABUTMENT VERTICAL DIMENSIONING DETAIL**  
(ON SQUARE) NTS



**PIER VERTICAL DIMENSIONING DETAIL**  
(ON SQUARE) NTS

**GENERAL NOTES**

- SCALES WHERE INDICATED ARE APPLICABLE FOR FULL SIZE A1 DRAWING LAYOUT.
- ALL DRAWING REFERENCES REFER TO CURRENT DRAWINGS.
- ROADWAY ELEVATIONS SPECIFIED ELSEWHERE ARE GIVEN TO TOP OF THEORETICAL CROWN ON CENTERLINE ROADWAY.

**GEOTECHNICAL CONSIDERATIONS**

- IT IS THE RESPONSIBILITY OF OTHERS USING THESE SUBSTRUCTURE DRAWINGS TO OBTAIN THE NECESSARY SITE SPECIFIC GEOTECHNICAL INFORMATION. A GEOTECHNICAL INVESTIGATION COMPLETED BY A QUALIFIED PROFESSIONAL ENGINEER SHALL BE UNDERTAKEN PRIOR TO THE DESIGN PHASE IN ORDER TO ESTABLISH THE SUITABILITY OF THE DESIGN AND CONSTRUCTION ASSUMPTIONS ON THESE DRAWINGS AND TO PROVIDE SUPPLEMENTARY INFORMATION WHERE REQUIRED.
- THE PILE TERMINATION CRITERIA AND DESIGN TIP ELEVATIONS SHALL BE DETERMINED BY A QUALIFIED PROFESSIONAL ENGINEER TO RESIST THE PILE LOADS PRESENTED IN TABLES 1 AND 2.

**TABLE 1: MINIMUM BEARING CAPACITY - SERVICE LOADS**

ABUT PILES (kN)	SPANS	PIER PILES			
		8 m	10 m	12 m	14 m
270	8 m	620	660	710	800
300	10 m		730	770	850
330	12 m			830	870
370	14 m				930

**TABLE 2: MINIMUM BEARING CAPACITY - ULTIMATE LOADS**

ABUT PILES (kN)	SPANS	PIER PILES			
		8 m	10 m	12 m	14 m
400	8 m	880	930	1000	1130
440	10 m		1020	1080	1190
480	12 m			1180	1220
540	14 m				1320

**HYDROTECHNICAL CONSIDERATIONS**

- IT IS THE RESPONSIBILITY OF OTHERS USING THESE SUBSTRUCTURE DRAWINGS TO COMPLETE A SITE SPECIFIC HYDROTECHNICAL ASSESSMENT IN ORDER TO ESTABLISH THE REQUIRED BRIDGE OPENING, TO CONFIRM THE SUITABILITY OF THE DESIGN ASSUMPTIONS LISTED ON THESE DRAWINGS AND TO SUPPLEMENT TO SUPPLEMENT THESE ASSUMPTIONS WHERE REQUIRED. CONSULTATION WITH A QUALIFIED PROFESSIONAL ENGINEER WITH HYDROTECHNICAL EXPERIENCE PRIOR TO THE DESIGN PHASE IS RECOMMENDED.

**DESIGN LOADS AND ASSUMPTIONS**

- **DESIGN SPECIFICATION:** CAN/CSA-S6-00
- **DESIGN VEHICLE:** CL-800
- **DEAD LOAD:** ABUTMENT AND PIER CAP SELF-WEIGHT, GIRDER SELF-WEIGHT AND WEARING SURFACE ALLOWANCE AS PER STANDARD SCC COMPOSITE BRIDGE GIRDER DRAWINGS S-1630, S-1631, S-1632, S-1633, S-1634, S-1635 AND S-1636.
- **ICE LOADS:** THE FOLLOWING LIMITING ASSUMPTIONS WERE USED FOR PIER DESIGN AND THESE DRAWINGS SHOULD NOT BE USED WHEN THESE DESIGN CONDITIONS ARE EXCEEDED:
  - EFFECTIVE CRUSHING STRENGTH  $p = 700 \text{ kPa}$
  - MAXIMUM ICE THICKNESS = 600 mm
  - FLOW ANGLE BETWEEN AXIS OF PIER AND STREAM = 0 DEGREES
  - MAXIMUM HEIGHT OF DECK SURFACE ABOVE STREAMBED = 7.5 m
  - HEIGHT OF ICE FORCE ABOVE STREAM BED:
    - = MINIMUM 1.0 m
    - = MAXIMUM 1.0 m BELOW UNDERSIDE OF BOX GIRDERS

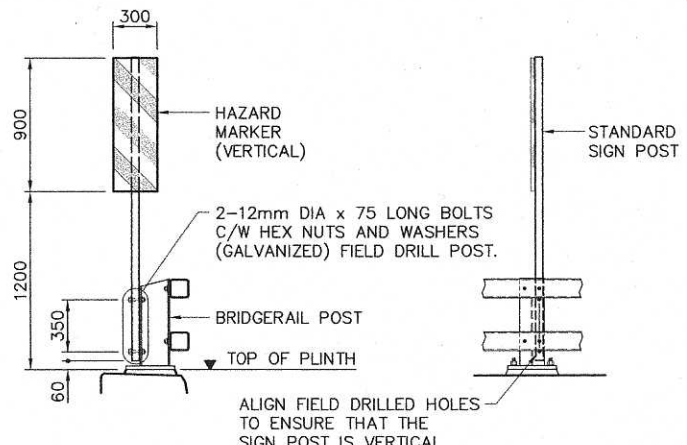
NUMBER OF GIRDER LINES	CLEAR ROADWAY WIDTH 'C' (NOM)	OVERALL WIDTH 'B' (NOM)
8	8 720	9 870
9	9 940	11 090
10	11 160	12 310
11	12 380	13 530
12	13 600	14 750
13	14 820	15 970

SPAN ARRANGEMENTS	GIRDER LENGTH			
	8 m	10 m	12 m	14 m
8-8 m	10-10 m	12-12 m	14-14 m	
8-8-8 m	10-10-10 m	12-12-12 m	14-14-14 m	
8-10-8 m	10-12-10 m	12-14-12 m	14-14-14-14 m	
8-12-8 m	10-14-10 m	12-12-12-12 m		
8-14-8 m	10-10-10-10 m	12-14-14-12 m		
8-8-8-8 m	10-12-12-10 m			
8-10-10-8 m	10-14-14-10 m			
8-12-12-8 m				
8-14-14-8 m				

- **BACKFILL**
  - THE CONTRACTOR MAY ELECT TO ERECT THE GIRDERS PRIOR TO BACKFILLING. IN THIS CASE, THE BACKFILLING MAY COMMENCE IMMEDIATELY AFTER GIRDERS ARE SECURED IN PLACE.
  - IF IT IS NECESSARY TO PARTIALLY BACKFILL PRIOR TO GIRDER ERECTION, THE CONTRACTOR SHALL PROVIDE A RESTRAINT SYSTEM AND MONITOR WALL DEFLECTIONS WITH ADEQUATE INSTRUMENTATION DURING THE BACKFILL STAGE.

- **GIRDER INSTALLATION**
  - REFER TO STANDARD SCC COMPOSITE BRIDGE GIRDER DRAWINGS (LATEST REVISION).

- **MATERIALS**
  - ALL CONCRETE SHALL BE CLASS C EXCEPT PILE CONCRETE SHALL BE USED FOR PIPE PILE INFILL. SULPHATE RESISTANT PORTLAND CEMENT (TYPE 50) SHALL BE USED IF DETERMINED TO BE NECESSARY FROM THE GEOTECHNICAL INVESTIGATION.
  - GIRDER DOWELS SHALL BE FABRICATED FROM SMOOTH ROUND BAR STOCK CONFORMING TO ASTM A1193-B7 ( $F_y = 725 \text{ MPa}$ ,  $F_u = 860 \text{ MPa}$ ). GALVANIZING SHALL BE STRICTLY APPLIED BY CONFORMING TO THE FOLLOWING PROCEDURE IN THE PRESENCE OF THE CONSULTANT:
    - BRUSH BLAST DOWELS TO REMOVE MILL SCALE AND OIL
    - FLASH PICKLING NOT TO EXCEED 5 MINUTES
    - QUICK DRY PRIOR TO HOT-DIP GALVANIZING (DO NOT STORE IN FLUX OR ACID RINSE)
  - ALL STEEL PLATE AND SHAPES SHALL CONFORM TO THE REQUIREMENTS OF CSA G40.21M GRADE 350W UNLESS NOTED OTHERWISE. PIER PILE STD PIPE BRACING MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A53. PIER PIPE PILES SHALL CONFORM TO THE REQUIREMENTS OF ASTM 252 GRADE 2 ( $F_y = 240 \text{ MPa}$ ).
  - PIER PILES AND BRACES SHALL BE HOT-DIPPED GALVANIZED. GALVANIZING MAY BE OMITTED FROM PILE SURFACES LOCATED MORE THAN 1000 mm BELOW STREAMBED. ALL EXPOSED FIELD WELDS OF GALVANIZED MATERIAL SHALL BE THOROUGHLY CLEANED AND REPAIRED BY METALLIZING IN ACCORDANCE WITH ASTM - A780, METHOD A3 METALLIZING.
  - GALVANIZING SHALL CONFORM TO THE CURRENT CSA STANDARD G164.
  - ALL WELDING SHALL CONFORM TO THE CURRENT AWS SPECIFICATION D1.5.
  - BEARING PADS SHALL CONSIST OF NEOPRENE 60 HARDNESS AND SHALL CONFORM TO SECTION 18 "BEARING DEVICES" DIVISION II OF THE AASHTO DESIGN STANDARD.
  - BEARING DOWEL HOLE GROUT TO BE SIKA 212 WITH A MINIMUM 28 DAY STRENGTH = 40MPa.



**HAZARD MARKER DETAILS**  
(SHOWN AS FOR PL-2) 1:25  
DOUBLE TUBE TYPE BRIDGERAIL)  
2 REQUIRED - RIGHT HAND } REQUIRED IF SPECIFIED IN  
2 REQUIRED - LEFT HAND } SITE SPECIFIC GENERAL LAYOUT

\*\*\* WORK THESE DRAWINGS TOGETHER WITH SITE SPECIFIC GENERAL LAYOUT AND STANDARD SCC COMPOSITE BRIDGE GIRDER DRAWINGS S-1630, S-1631, S-1632, S-1633, S-1634, S-1635 AND S-1636.

	DESIGNER DATE: AUG 9, 2005	CHECKER DATE: August 9, 2005	REVISIONS <table border="1"> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>																																									PERMIT TO PRACTICE Signature: <i>Bob Tomney</i> Date: August 9, 2005 PERMIT NUMBER: P329 The Association of Professional Engineers, Geologists and Geophysicists of Alberta	RECOMMENDED DIRECTOR BRIDGE ENGINEERING Tom Loo APPROVED EXECUTIVE DIRECTOR TECHNICAL STANDARDS BRANCH Allan Stewart DATE: August 16, 2005